ELSV-60 Solarc® Light Source

Operating Manual

What You Have Received

Thank you for purchasing the ELSV-60 Solarc® Hi-Lux Light Source. This product was manufactured for GE Inspection Technologies by Welch Allyn Inc., our parent company and technology leader in the design and manufacture of advanced technology lighting products.

By following the use and care instruction in this guide, you will be rewarded with years of dependable, trouble-free service. Please read these instructions completely before use.

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System Symbol Description

Caution: Refer to User's Manual

Caution: Hot Surface

Replace Fuse as Marked: Type F, 250V, 2A

Warning: High Voltage is Present

Symbol in Electrical Rating Signifies AC Mains Power

Symbol on Power Switch Indicates Power is On When Depressed

Symbol on Power Switch Indicates Power is Off When Depressed

Protective Earth Ground

Equipotential with Ground

High Intensity Light

Warning and Precautions

DIRECT VIEWING OF EXITING LIGHT CAN BE HARMFUL!
The light at the front of the light source and at the tip of a connected fiber-optic bundle is of high intensity and can result in very high temperatures. To minimize the risk of injury, avoid direct viewing of the light or contact with surrounding surfaces. Light includes UV wavelengths which may cause skin or eye irritation from direct exposures exceeding 15 min./day.

TO PREVENT TEMPORARY BLINDING
and contact with heated parts, always plug the fiber optic bundle into the light source before turning the power on.

ALWAYS PROVIDE ADEQUATE VENTILATION
to prevent overheating. Do not cover the light source or place the unit within 7.62 cm (3 in.) of a solid object.

DURING OPERATION, THE LAMP SHOULD BE ENCLOSED
in the light source to prevent injury in the occasional circumstance of the lamp shattering.

USE CAUTION WHEN REPLACING LAMP.
Allow lamp to cool. Use only GE Inspection Technologies replacement lamp #SPL-600. For optimum performance, avoid handling the bulb or reflector. Fingerprints or other contaminants on the glass may result in performance degradation.

DO NOT SWITCH THE LIGHT SOURCE ON AND OFF IN RAPID SUCCESSION.
Doing so will dramatically shorten lamp life. After turning off, wait 15 seconds before turning on again.

The supplied detachable power cord is the means of disconnect from the power source.

AVERTISSEMENTS ET PRECAUTIONS

L'intensité lumineuse du générateur de lumière et à l'extrémité du guide de lumière, induit unc température élevée et une forte luminosité. Pour minimiser les risques de blessures, éviter tout contact direct avec les yeux et la peau.

Afin d'empêcher un aveuglement temporaire et toute brûlure, ilest recommandé de connecter le guide de lumière au générateur avant la mise en marche de ce dernier.

Ne pas allumer et éteindre le générateur de lumière successivement. Ceci réduirait considérablement la durée de vie de la lampe. Après l'avoir éteint patienter 10 à 15 seconds avant de le remettre en marche.

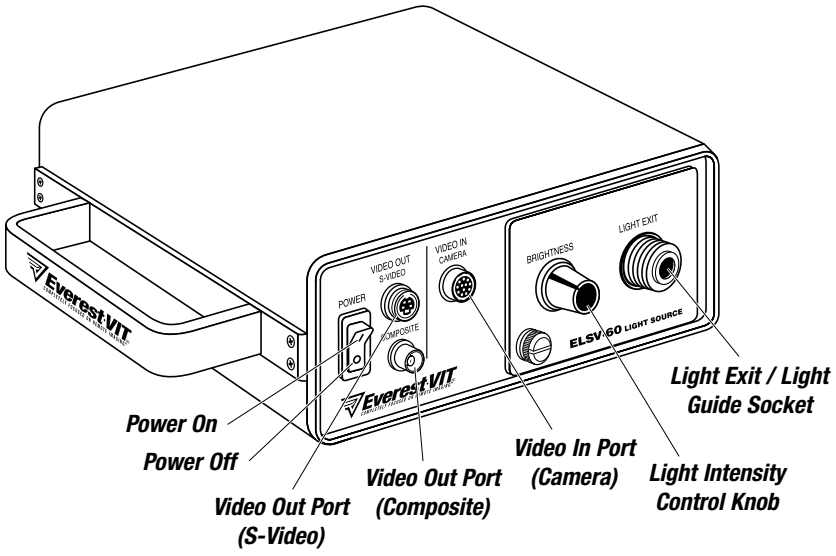
ATTENTION:
utiliser une ventilation adéquate pour éviter toute surchauffe du générateur. Si vous le sortez de sa sacoche : ne pas l'envelopper dans un tissu et ne pas le placer à moins de 8 cm de tout objet.

PRECAUTIONS:
à prendre lors du remplacement de la lampe : laisser la lampe refroidir. Utiliser la lampe GE Inspection Technologies Réf: #SPL-600.

System Description

The ELSV-60 Hi-Lux Light Source provides high quality, white light for industrial borescope and fiberscope inspections. It incorporates a patented and field-proven lamp technology that has much greater efficiency than halogen or xenon lamps when transferring light into a small fiber bundle, such as that found in borescopes and fiberscopes. This greater efficiency allows the lamp to run at only 60W, which then enables a small and lightweight light source design. The high efficiency also enables the light source to provide high intensity light without getting very hot, which is an advantage in user safety.

Video inspections are also easy with the ELSV-60. A special video channel makes setup and operation with our BCAM 1000 C-Mount Camera simple. A single cable connection provides power to the camera and carries the video signal from the camera back to the light source. Video outputs carry the signal to a monitor or other video peripheral devices for image display and/or recording.



System Setup and Operation

CAUTION:

1. *Verify that the supply voltage is within the 100-240VAC range specified for this product.*
2. *To prevent temporary blinding, insert light guide into socket before turning power ON.*
3. *The light guide tip and light source socket will be hot when light guide is removed.*

CONTROLS & PORTS

ON/OFF Switch

A two position rocker switch is used to turn the unit on or off. Depressing the side marked with a (**I**) turns the unit on, while depressing the side marked with an (**O**) turns it off.

Light Intensity Control Knob

This knob on the front panel rotates to adjust the amount of light transferred into the light guide. Rotating the ring clockwise will increase the amount of light in the image and rotating the ring counter clockwise will decrease the amount of light. This manual control is helpful when trying to better illuminate one part of the image or when trying to reduce blooming.

Light Exit/Light Guide Socket

Socket will accept Olympus style adapter.

Video-In Camera Port

When using a borescope with the BCAM C-Mount Camera, the BCAM power/video cable connects to the light source here. It carries power from the light source to the camera, and brings the camera video back to the light source video channel. It can not be used with cameras other than the BCAM.

Video-Out Ports

When using a borescope with the BCAM C-Mount Camera, the camera video is accessed at either of these ports. Connect either an S-Video or composite BNC cable from the appropriate output port to a monitor for display, or other peripheral device for recording.

System Setup and Operation (continued)

Setup

1. With the power switch in the OFF position, plug the AC power cord into the power input port on the back of the unit and then into a grounded receptacle.

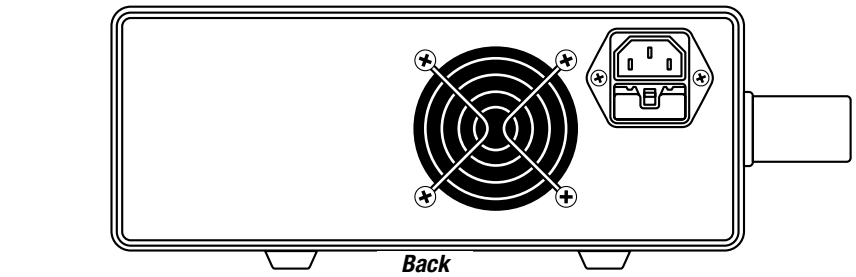
2. Plug a light guide with appropriate adapter installed into the light exit socket.

   Note: *The light guide is fully inserted when the light guide spring snaps into the groove cut into the socket.*

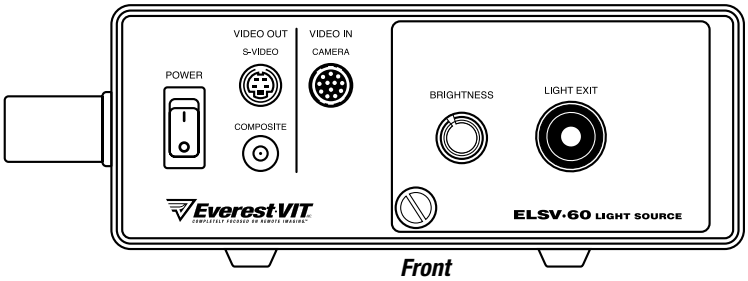
3. Turn the power switch ON and wait 15 seconds for the lamp to complete the warm-up cycle.

   Note: *If the power has just been turned OFF, allow 15 seconds for complete discharge before turning ON again.*

4. Set the light intensity to the desired level by turning the Light Intensity Control Knob.



Back



Front

System Setup and Operation (continued)

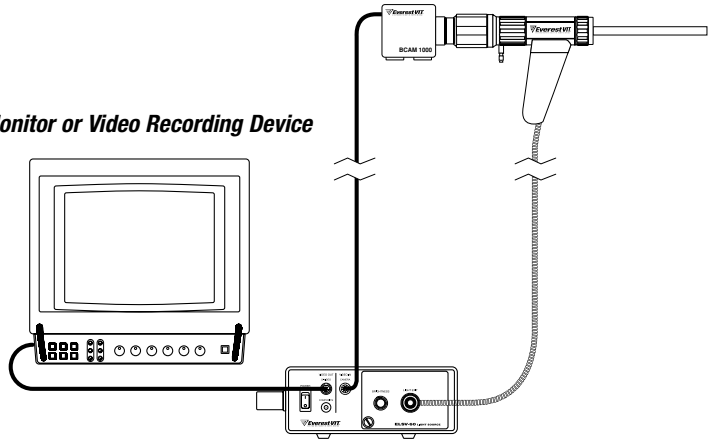
Continue with steps 5 & 6 if you are using the BCAM 1000 C-Mount Video Camera

5. Connect the BCAM power/video cable from the camera to the VIDEO IN CAMERA port on the light source front panel.

6. Connect a video cable from either the S-Video or composite video-out port on the light source front panel to a monitor or video recording device.

BCAM 1000 C-Mount Video Camera

Monitor or Video Recording Device



ELSV-60 Hi-Lux Light Source

User Maintenance

Lamp Replacement

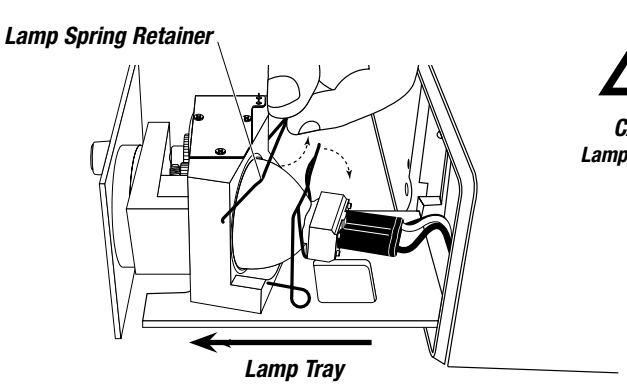
CAUTION: *Lamp may be Hot! Allow the lamp to cool before replacing.*

NOTE: *Use only GE Inspection Technologies replacement lamp SPL-600.*

AVERTISSEMENT: *Pour eviter les rique d'incendie. Utiliser une Lampe de rechange a GE Inspection Technologies SPL-600.*

DO NOT *touch the lamp itself or the interior reflective surface, because skin oils will cause premature lamp failure. If necessary, clean fingerprints with an alcohol dampened cotton swab. Do not leave lint on the lamp.*

1. Turn the unit off and disconnect the power cord from both the wall outlet and the light source.
2. Loosen finger screw on Lamp Access Panel and pull out Lamp Tray.
3. Remove old lamp by rotating Lamp Spring Retainer away from lamp spring, pulling lamp back and up and then unplugging lamp connector from harness.
4. Install new lamp by plugging lamp connector into harness and inserting the lamp into tray housing, ensuring alignment notches are in the 6:00 and 12:00 positions. Rotate Lamp Spring Retainer back over Lamp Spring. Use only GE Inspection Technologies replacement lamp SPL-600.
5. Push Lamp Tray back into light box and lock in position with the finger screw.
6. Reconnect power cord.



CAUTION:
Lamp may be Hot!

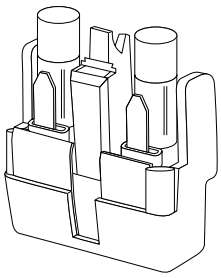
User Maintenance (continued)

FUSE REPLACEMENT

1. Fuse replacement must be completed with power cord disconnected.

2. Fuses are present in fuseholder. Use the same type, same rated fuse as marked and specified to avoid risk of fire hazard.

Fuse



CLEANING

WARNING: *Prior to cleaning, turn power switch OFF and disconnect the power cord from both the wall outlet and light source.*

- Clean the external surfaces of the light source with a cloth dampened in a solution of mild soap and water. ***DO NOT IMMERSE! DO NOT GET WATER INTO PORTS AND CONNECTORS!***
- The power cord may be wiped cleaned in the same way, taking care not to get the prongs wet. ***DO NOT RECONNECT POWER CORD WHILE WET!***
- ***DO NOT*** plug the ELSV-60 light source into a wall outlet until it and the power cord are completely dry.

Troubleshooting Guide

SYMPTOM	***PROBABLE CAUSE***	***SOLUTION***
• Lamp is not illuminating and fan ***is*** operating.	• Lamp was not given adequate time to "cool down" before restarting.	• Turn unit off and wait 20 seconds before turning back on.
	• Light Source has overheated.	• Verify environmental temperature does not exceed specifications and allow to cool down for 10 minutes. Check to ensure vents and fan exhaust are not obstructed.
	• Lamp has burned out.	• Replace lamp in accordance with instructions in the **USER MAINTENANCE** section of this manual. Use only GE Inspection Technologies replacement lamp part number SPL-600

SYMPTOM	***PROBABLE CAUSE***	***SOLUTION***
• Lamp is not illuminating and fan ***is NOT*** operating...	• Power cord not securely connected to light source or AC source.	• Check for secure connections.
	• AC source is not active.	• Use another power source or restore power to the current source.
	• Power cord is damaged (may cause intermittent operation).	• Replace power cord.
	• Light Source power switch is not turned on.	• Turn switch to the (**I**) position.
	• Lamp Drawer is not completely closed	• Push Lamp Drawer closed and lock in place by tightening finger screw.
	• One or both fuses have blown.	• Replace both fuses in accordance with instructions in the **USER MAINTENANCE** section of this manual. If fuses continue to blow, return unit to service center.

If the above suggestions do not solve the problem, call GE Inspection Technologies Service Center listed in this manual. ***DO NOT ATTEMPT DISASSEMBLY! THERE ARE NO USER SERVICEABLE COMPONENTS OTHER THAN LAMP.***

Technical Specifications

Power In	100-240VAC, 50/60 Hz, 2.0A (@ 120VAC)
Fuse Set	2 each 2.0A 250V Type F (Fast Acting)
Dimensions	23 x 23 x 9.3 cm (9.0 x 9.0 x 3.7 in.)
Weight	2.42 kg (5.3 lbs.)

Illumination System

Lamp	Solarc® Metal-Halide, 60W, 60V, Part #SPL-600
Color Temperature	6500K
Median Lamp Life	1000 hours
Intensity Control	Manual shutter (0% to 100% full output)

Environment

Operating	
Temperature	-21˚C to 46˚C (-4˚F to 115˚F)
Humidity	0 to 95% relative humidity
Storage	
Temperature	-23˚C to 60˚C (-10˚F to 140˚F)
Humidity	30 to 75% relative humidity, non-condensing

Video Channel

Input	GE Inspection Technologies BCAM camera cable
Output	S-Video and Composite BNC

Equipment Classifications

Class 1, Type B, Continuous Operation, Pollution Degree 2

Agency Certifications

ETL
CE
FCC Part 15 Class A
EN61010-1, EN50081-1, EN50081-2
CSA 22.2 NO.1010.1
UL 3101-1

Agency Compliance Statements

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Class A Compliance Statement
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Caution: *Any changes or modifications made to this device that are not expressly approved by GE Inspection Technologies may void the user's authority to operate the equipment.*

Note: *To maintain compliance with FCC Rules and Regulations, cables connected to this device must be shielded cables, in which the cable shield wire(s) have been grounded (tied) to the connector shell.*

Canadian Notice
This equipment does not exceed the Class A limits for radio noise emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.

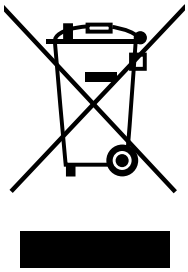
Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux apparelis numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectique edicte par le ministere des Communications du Canada.

Warranty

GE Inspection Technologies warrants the ELSV-60 Light Source to be free of defects in material and workmanship and to perform in accordance with the manufacturer's specifications when subject to normal use and service for a period of one year from the date of purchase. GE Inspection Technologies will either repair or replace components found to be defective or at variance from the manufacturer's specifications within this time at no cost to the customer. It shall be the purchaser's responsibility to return the instrument to the authorized service center.

This warranty does not apply to the lamp, or cover instrument breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or to improper maintenance, service, and cleaning procedures. This warranty is also void if the instrument is not used in accordance with the manufacturer's recommendations or if required service is performed by anyone other than an GE Inspection Technologies authorized agent. No other express or implied warranty is given.

Environmental Compliance



The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way.

The crossed-out wheeled bin symbol invites you to use those systems.

If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration.

Visit www.ge.com/inspectiontechnologies for take-back instructions and more information about this initiative.

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ISO 9001
REGISTERED COMPANY

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